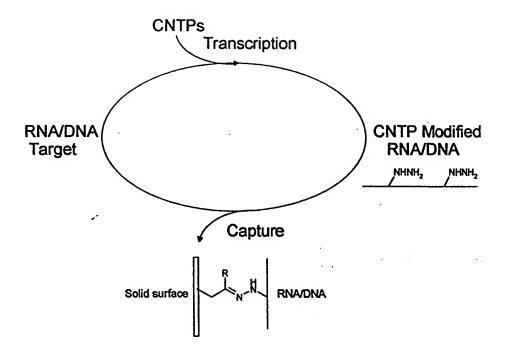
Figure 1



$$\begin{matrix} R & NH_2 \\ N & H \end{matrix}$$

hydrazine

$$R \underset{O}{\bigvee} \underset{NH_2}{\overset{n}{\bigvee}}$$

hydrazide

$$\begin{array}{c|c} R & O \\ N & N \\ I & I \\ H & H \end{array}$$

semicarbazide

$$\begin{array}{c|c}
R & & & \\
N & & & \\
N & & & \\
H & & H
\end{array}$$

thiosemicarbazide

carbazide

thiocarbazide

$$R \xrightarrow[H]{O} H \xrightarrow[N]{H} H$$

$$N \xrightarrow[H]{O} N \xrightarrow[N]{N} NH_2$$

15

carbonic acid dihydrazine

$$R \underset{H}{ \bigcirc NH_2}$$

hydrazine carboxylate

hydroxylamine or aminooxy

Figure 3

$$R_1$$
 H R_1 R_2 R_2 aldehyde

 R_1 and R_2 = alkyl, aromatic or heteroaromatic

$$R = X = NH$$

hydrazino $X = NH$

oxyamino $X = O$
 $R = X = NH$

hydrazone $X = NH$

oxime $X = O$

R' = hydrogen or aliphatic or aromatic moiety

- 1) DMF, 0.1 M phosphate 0.15 M NaCl, pH 4.7
- 2) ion exchange HPLC

iigg.

- 1) DMF, 0.1 M phosphate, 0.15 M NaCl, pH 4.7
- 2) ion exchange HPLC

v iv

hydrazinium hydrate/pyridine/ acetic acid (0.124/4/7)

...\$<u>.</u>`

Figure 9

$$A \longrightarrow D \longrightarrow A$$

$$N^{+} \longrightarrow N$$

$$R$$

cyanine dyes

D = S, CMe_2 ; A = H, SO_3 , CH; n = 1, 2 or 3; R, R' = alkyl, aryl, heteroaryl, M-X

$$R_2N$$
 $COOR$
 N^+R_2

rhodamines

R = H, alkyl, aryl, heteroaryl, M-X

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fluoresceins

R = H, OR, NR_2 , alkyl, aryl, heteroaryl, M-X